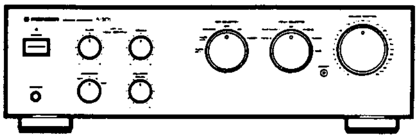
PIONEER
The Art of Entertainment

Service Manual



ORDER NO.
ARP2481

STEREO AMPLIFIER

A-301

A-301 HAS THE FOLLOWING :

Type	Power Requirement	Remarks
HE	AC220 - 230V, 230 - 240V (switchable)*	
HEWZ	AC220 - 230V, 240V (switchable)*	
KU	AC120V only	
SD	AC110V, 120 - 127V, 220V, 240V (switchable)	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to HE, HEWZ, KU and SD types.**
- **For HEWZ, KU and SD types, refer to page 25.**
- **Ce manuel pour le service comprend les explications de réglage en francais.**
- **Este manual de servicio trata del método ajuste escrito en español.**

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

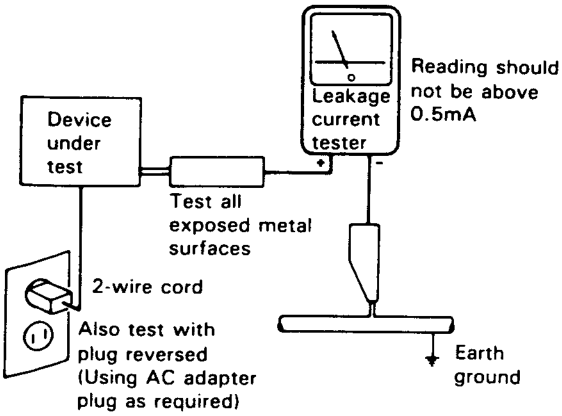
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

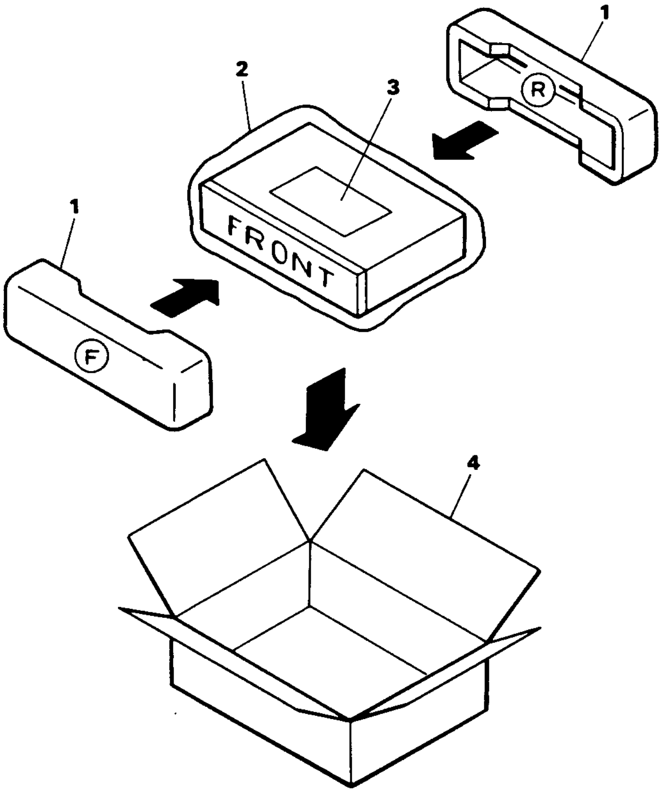
2. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- *The parts with an encircled number are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

2.1 PACKING

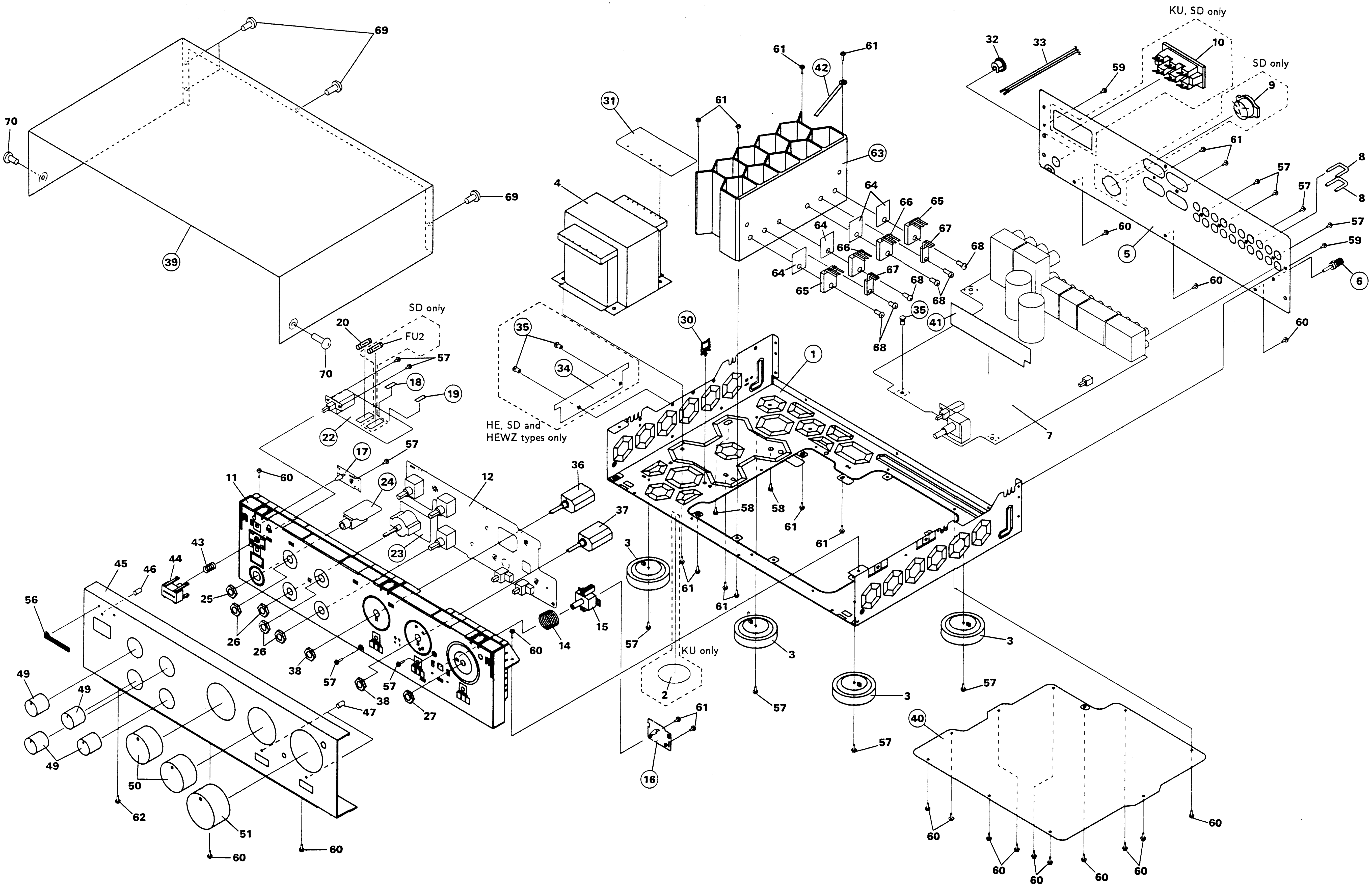
Mark	No.	Description	Parts No.
	1	Front rear pad	AHA1335
	2	Packing sheet	AHG1016
	3	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	ARE1227
	4	Packing case	AHD2243



2.2 EXPLODED VIEWS

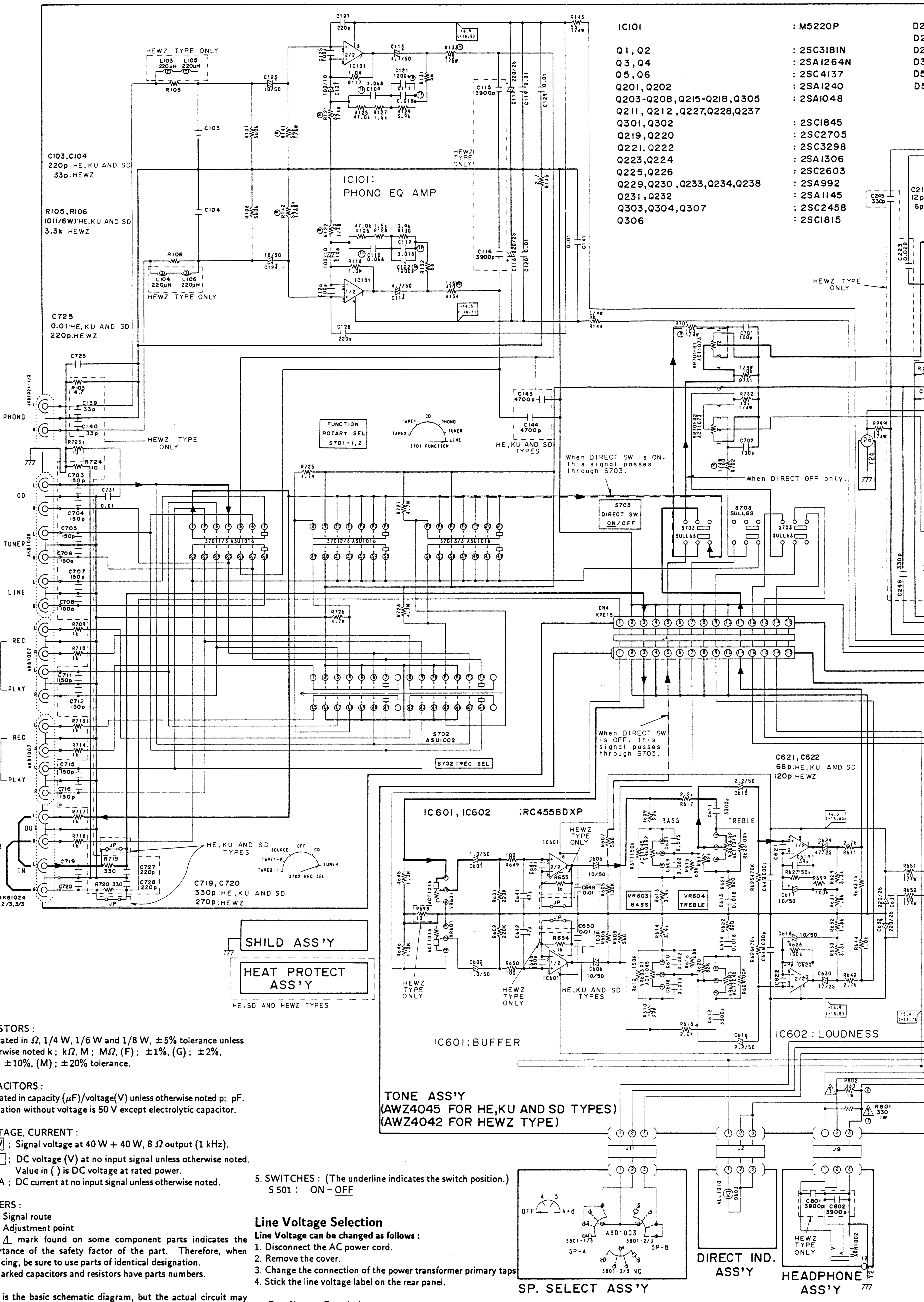
Mark	No.	Description	Parts No.
	1	Chassis	ANA1065
	2	UL caution card	AAX−313
	3	Insulator assembly	AMR2140
⚠	4	Power transformer	ATS1345
	5	Rear panel	ANC1547
	6	Earth terminal	AKE−031
◉	7	AF COMPLEX assembly	AWZ4043
	8	Pin jack with plug	AKM1004
⚠	9	Voltage selector(SD only)	AKX−507
⚠	10	3P AC outlet (KU, SD)	AKP−515
	11	Panel base	AMB1961
◉	12	TONE assembly	AWZ4045
	13	....	
	14	Coil spring A	ABH1081
	15	Direct knob assembly	AAD2220
	16	Direct IND. assembly	AWZ4035
	17	LED assembly	AWZ4033
	18	Fuse card	AAX1581
	19	Fuse card	AAX−302
⚠	20	FUSE (FU1, T2A/250V)	AEK−511
	21	....	
	22	POWER SW assembly	AWZ4030
	23	SP. SELECT assembly	AWZ4036
	24	HEAD PHONE assembly	AWZ4044
	25	Nut	ABN−065
	26	Nut	NK90FUC
	27	Nut	NK70FUC
	28	....	
	29	Nylon rivet	AEC1160
	30	Wire clip	AEC1388
	31	POWER TRANS assembly	AWZ4047
⚠	32	AC cord stopper	AEC−882
⚠	33	AC power cord	ADG1049
	34	HEAT PROTECT assembly	AWZ4038
	35	Nylon rivet	AEC1160

Mark	No.	Description	Parts No.
	36	Remote slide rotary switch	ASU1042
	37	Remote slide rotary switch	ASU1043
	38	Nut	NK90FUC
	39	Bonnet	ANE1147
	40	Bottom plate	ANF1085
	41	SHIELD assembly	AWZ4034
	42	Binder	AEF1004
	43	Coil spring B	ABH−052
	44	Power knob	AAD1984
	45	Front panel	ANB1496
	46	LED lens (ABS)	PNW2019
	47	LED lens	AMR1160
	48	....	
	49	Rotary knob S	AAB1276
	50	Rotary knob M	AAB1282
	51	Rotary knob L	AAB1277
	52	....	
	53	....	
	54	....	
	55	Push knob	AAD2221
	56	Name plate	AAM1029
	57	Bind B tyte	ABA−298
	58	Screw (4×16)	ABA1016
	59	Screw	ABA1009
	60	Screw B tyte	ABA1011
	61	Screw	ABA1050
	62	Screw	ABA1048
	63	Heat sink	ANH1260
	64	Mica sheet	AEE1014
⚠	65	Transistor (Q3, Q4)	2SA1264N
⚠	66	Transistor (Q1, Q2)	2SC3181N
⚠	67	Transistor (Q5, Q6)	2SC4137
	68	Screw	ABA1082
	69	Screw	ABA1011
	70	Screw	BBT30P060FZK


SD only
FU2
HE, SD and HEWZ types only
KU, SD only
SD only
KU only

3. SCHEMATIC DIAGRAMS

AF COMPLEX ASS'Y (AWZ4043 FOR HE,KU AND SD TYPES)
(AWZ4040 FOR HEWZ TYPE)


IC101 : M5220P
Q1,Q2 : 2SC3181N
Q3,Q4 : 2SA1264N
Q5,Q6 : 2SC4137
Q201,Q202 : 2SA1240
Q203-Q208,Q215-Q218,Q305 : 2SA1048
Q211,Q212,Q227,Q228,Q237
Q301,Q302 : 2SC1845
Q219,Q220 : 2SC2705
Q221,Q222 : 2SC3298
Q223,Q224 : 2SA1306
Q225,Q226 : 2SC2603
Q229,Q230,Q233,Q234,Q238 : 2SA992
Q231,Q232 : 2SA1145
Q303,Q304,Q307 : 2SC2458
Q306 : 2SC1815
IC101: PHONO EQ AMP
HEWZ TYPE ONLY
C103,C104 220p:HE,KU AND SD 33p:HEWZ
R105,R106 10(1/6W):HE,KU AND SD 3.3k:HEWZ
C725 0.01:HE,KU AND SD 220p:HEWZ
PHONO
CD
TUNER
LINE
TAPE 1 REC PLAY
TAPE 2 REC PLAY
ADAPTOR OUT IN
FUNCTION ROTARY SEL S701-1,2
TAPE1 CD PHONO TAPE2 TUNER LINE
S701 FUNCTION
HE,KU AND SD TYPES
When DIRECT SW is ON, this signal passes through S703.
S703 DIRECT SW ON/OFF
When DIRECT OFF only.
When DIRECT SW is OFF, this signal passes through S703.
S702 ASU1002
S702 : REC SEL
SOURCE OFF CD TAPE1-2 TUNER TAPE2-1
S702 REC SEL
C719,C720 330p:HE,KU AND SD 270p:HEWZ
C621,C622 68p:HE,KU AND SD 120p:HEWZ
IC601,IC602 :RC4558DXP
BASS TREBLE
VR603 BASS
VR604 TREBLE
SHILD ASS'Y
HEAT PROTECT ASS'Y
HE,SD AND HEWZ TYPES
IC601:BUFFER
IC602 : LOUDNESS
TONE ASS'Y (AWZ4045 FOR HE,KU AND SD TYPES) (AWZ4042 FOR HEWZ TYPE)
SP. SELECT ASS'Y
OFF A B A+B
S801 ASD1003
SP-A SP-B
DIRECT IND. ASS'Y
HEADPHONE ASS'Y
HEWZ TYPE ONLY
J11 J2 J9 CN4 J4

1. RESISTORS :
   Indicated in Ω, 1/4 W, 1/6 W and 1/8 W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF)/voltage(V) unless otherwise noted p; pF. Indication without voltage is 50 V except electrolytic capacitor.

3. VOLTAGE, CURRENT :
   V ; Signal voltage at 40 W + 40 W, 8 Ω output (1 kHz).
   ; DC voltage (V) at no input signal unless otherwise noted. Value in ( ) is DC voltage at rated power.
   ⇦mA ; DC current at no input signal unless otherwise noted.

4. OTHERS :
   ➡ ; Signal route
   ⊘ ; Adjustment point
   The ⚠ mark found on some component parts indicates the inportance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES : (The underline indicates the switch position.)
   S 501 : ON – OFF

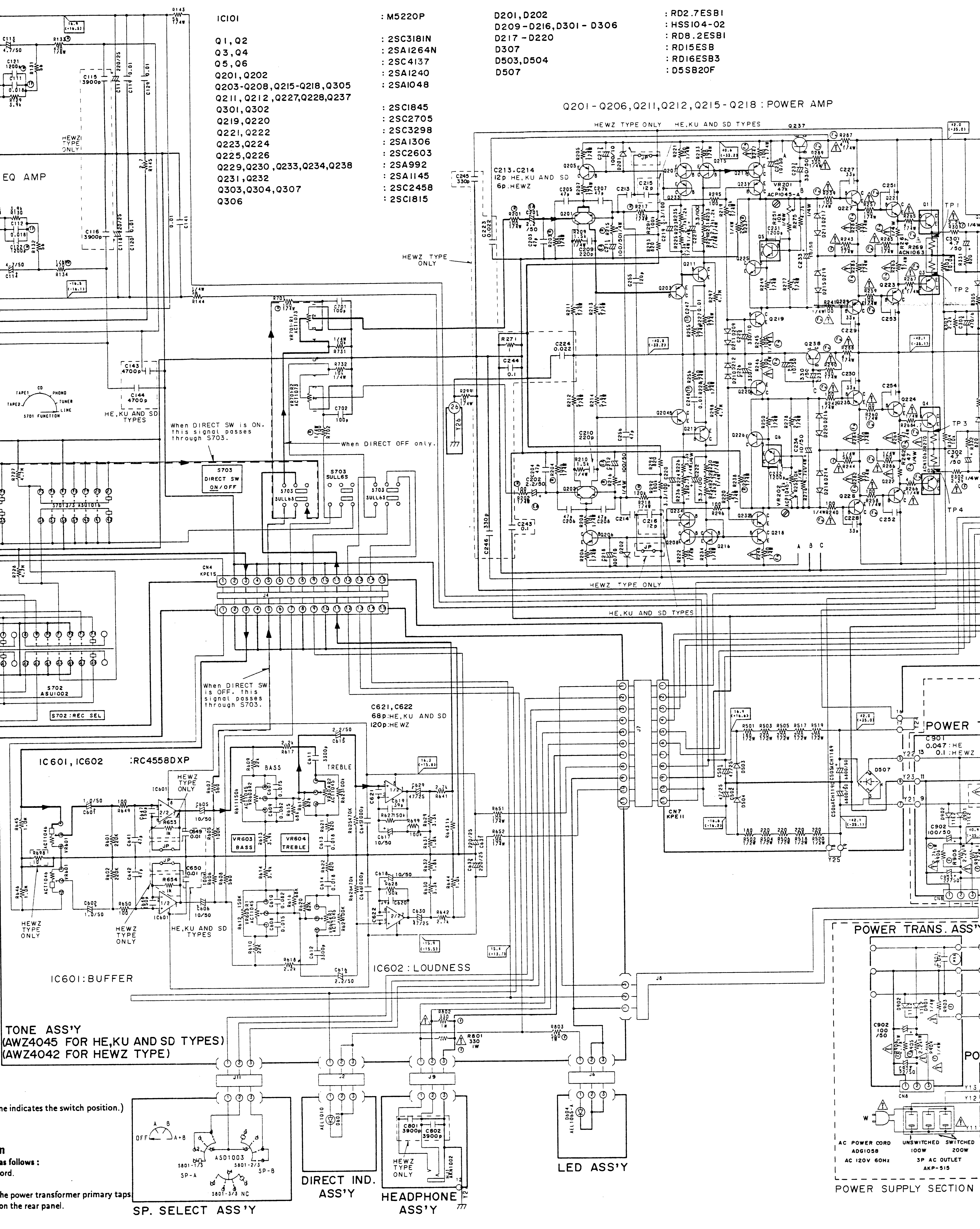
Line Voltage Selection

Line Voltage can be changed as follows :

1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection of the power transformer primary taps
4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX – 193	220 V label
AAX – 192	240 V label

SD TYPES)
)


EQ AMP
HEWZ TYPE ONLY
S701 FUNCTION
TAPE1 CD PHONO TUNER TAPE2 LINE
HE,KU AND SD TYPES
When DIRECT SW is ON, this signal passes through S703.
S703 DIRECT SW ON/OFF
When DIRECT OFF only.
S703 SULL65
S702 ASU1002
S702 : REC SEL
When DIRECT SW is OFF, this signal passes through S703.
CN4 KPE15
J4
Q201-Q206,Q211,Q212,Q215-Q218 : POWER AMP
HEWZ TYPE ONLY
HE,KU AND SD TYPES
C213,C214 12p HE,KU AND SD 6p HEWZ
HEWZ TYPE ONLY
TP1
TP2
TP3
TP4
C621,C622 68p:HE,KU AND SD 120p:HEWZ
IC601, IC602 :RC4558DXP
BASS
TREBLE
VR603 BASS
VR604 TREBLE
HEWZ TYPE ONLY
HE,KU AND SD TYPES
IC601:BUFFER
IC602 : LOUDNESS
J7
CN7 KPE11
J8
POWER
C901 0.047 :HE 0.1 :HEWZ
D507
POWER TRANS. ASS'Y
AC POWER CORD ADG1058 AC 120V 60Hz
UNSWITCHED 100W
SWITCHED 200W
3P AC OUTLET AKP-515
POWER SUPPLY SECTION
TONE ASS'Y
(AWZ4045 FOR HE,KU AND SD TYPES)
(AWZ4042 FOR HEWZ TYPE)
J11
J2
J9
J6
OFF A B A+B
ASD1003
S801-1/3 S801-2/3 S801-3/3 NC
SP-A SP-B
DIRECT IND. ASS'Y
HEWZ TYPE ONLY
HEADPHONE ASS'Y
LED ASS'Y
SP. SELECT ASS'Y

IC101	: M5220P
Q1,Q2	: 2SC3181N
Q3,Q4	: 2SA1264N
Q5,Q6	: 2SC4137
Q201,Q202	: 2SA1240
Q203-Q208,Q215-Q218,Q305	: 2SA1048
Q211,Q212,Q227,Q228,Q237	
Q301,Q302	: 2SC1845
Q219,Q220	: 2SC2705
Q221,Q222	: 2SC3298
Q223,Q224	: 2SA1306
Q225,Q226	: 2SC2603
Q229,Q230,Q233,Q234,Q238	: 2SA992
Q231,Q232	: 2SA1145
Q303,Q304,Q307	: 2SC2458
Q306	: 2SC1815

D201,D202	: RD2.7ESB1
D209-D216,D301-D306	: HSS104-02
D217-D220	: RD8.2ESB1
D307	: RD15ESB
D503,D504	: RD16ESB3
D507	: D5S820F

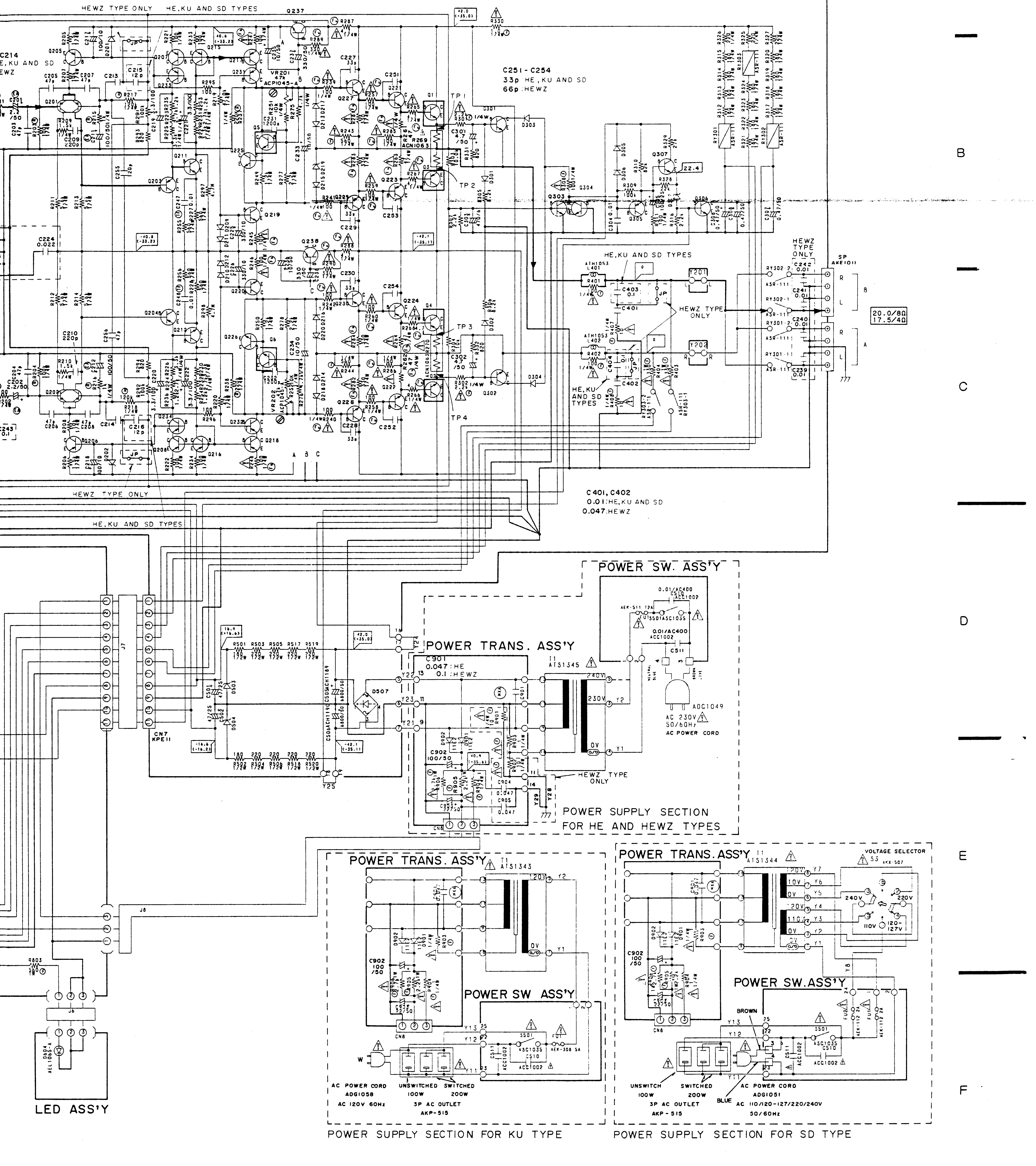
ne indicates the switch position.)

n
as follows :
ord.

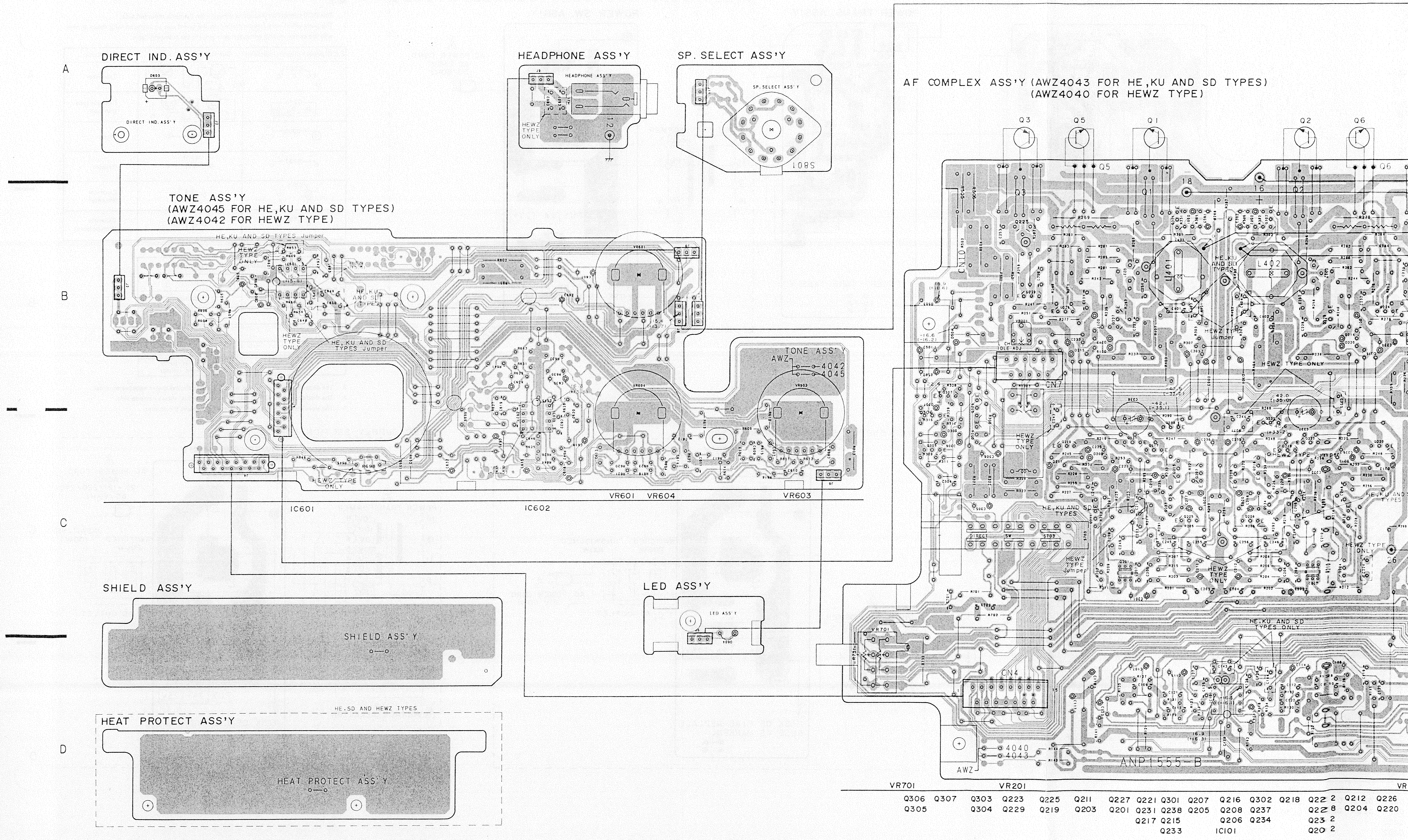
he power transformer primary taps
on the rear panel.

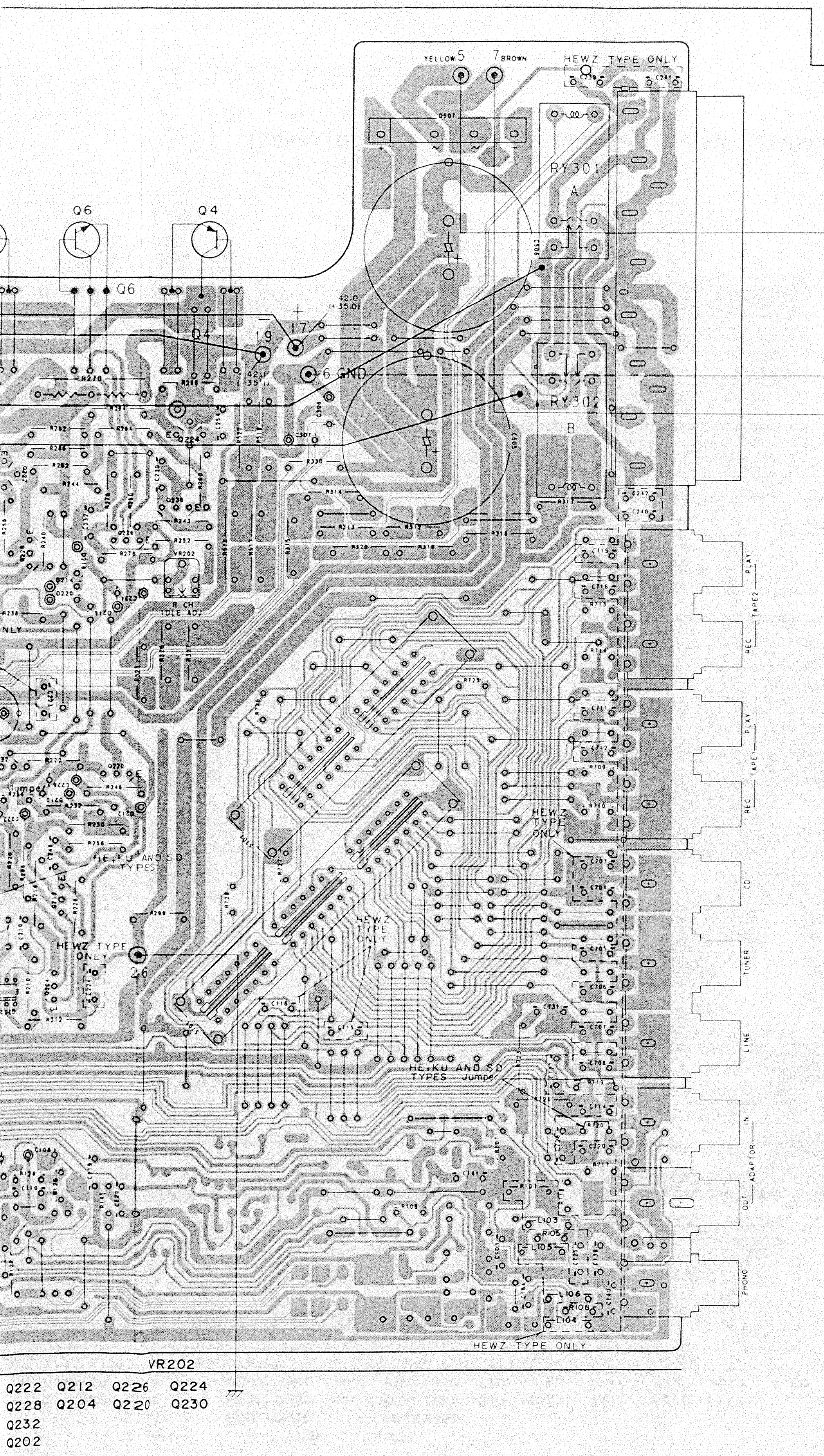
ı,D202	: RD2.7ESB1
9-D216,D301 - D306	: HSS104-02
7 -D220	: RD8.2ESB1
7	: RD15ESB
3,D504	: RD16ESB3
7	: D5SB20F

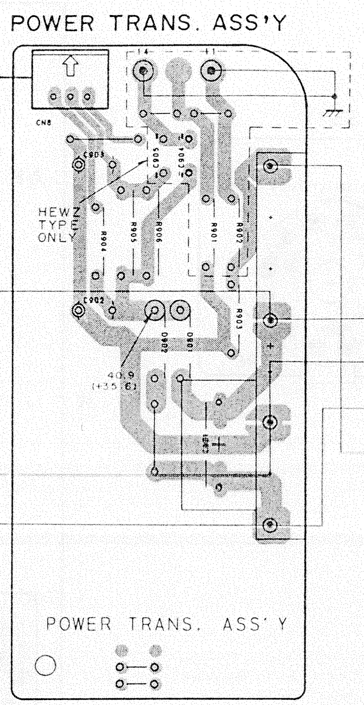
Q201 - Q206, Q211, Q212, Q215 - Q218 : POWER AMP

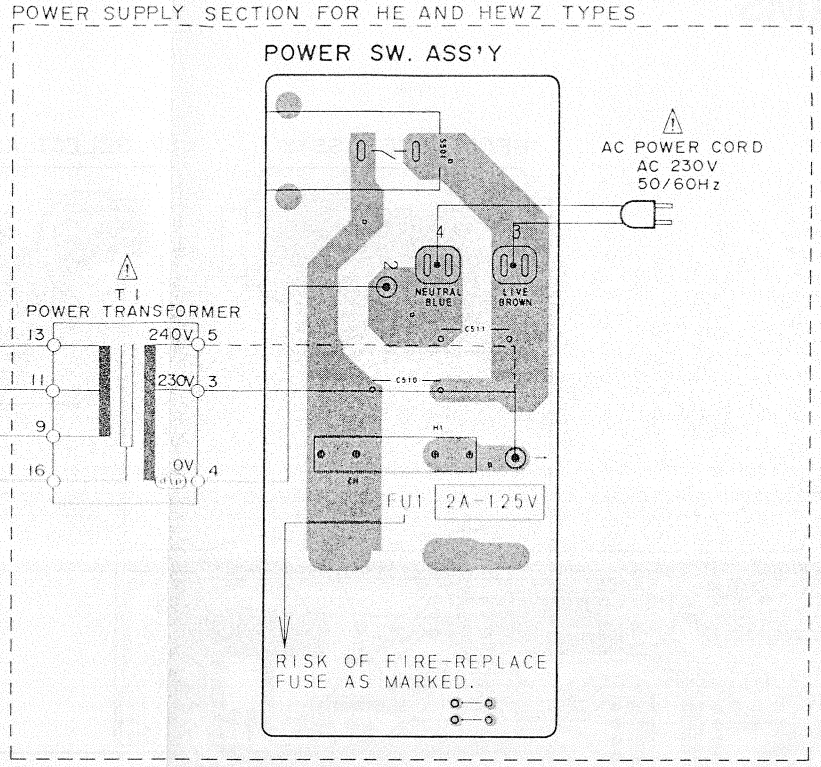

HEWZ TYPE ONLY
HE,KU AND SD TYPES
Q237
C251 - C254
33p :HE,KU AND SD
66p :HEWZ
TP1
TP2
TP3
TP4
HE,KU AND SD TYPES
HEWZ TYPE ONLY
HE,KU AND SD TYPES
SP AKE1011
20.0/8Ω
17.5/4Ω
C401, C402
0.01 : HE,KU AND SD
0.047 : HEWZ
HEWZ TYPE ONLY
HE,KU AND SD TYPES
J7
CN7 KPE11
POWER SW. ASS'Y
POWER TRANS. ASS'Y
C901
0.047 :HE
0.1 :HEWZ
T1 ATS1345
240V
230V
0V
ADG1049
AC 230V
50/60Hz
AC POWER CORD
HEWZ TYPE ONLY
POWER SUPPLY SECTION FOR HE AND HEWZ TYPES
J8
J6
D604 AEL1065-A
LED ASS'Y
POWER TRANS. ASS'Y
T1 ATS1343
120V
0V
POWER SW ASS'Y
S501 ASC1035
AC POWER CORD ADG1058
AC 120V 60Hz
UNSWITCHED 100W
SWITCHED 200W
3P AC OUTLET AKP-515
POWER SUPPLY SECTION FOR KU TYPE
POWER TRANS. ASS'Y
T1 ATS1344
VOLTAGE SELECTOR S3 AKX-507
240V
220V
110V
120-127V
POWER SW.ASS'Y
BROWN
BLUE
UNSWITCH 100W
SWITCHED 200W
3P AC OUTLET AKP-515
AC POWER CORD ADG1051
AC 110/120-127/220/240V 50/60Hz
POWER SUPPLY SECTION FOR SD TYPE
A
B
C
D
E
F

4. PCB CONNECTIONS DIAGRAMS


DIRECT IND. ASS'Y
HEADPHONE ASS'Y
SP. SELECT ASS'Y
AF COMPLEX ASS'Y (AWZ4043 FOR HE, KU AND SD TYPES)
(AWZ4040 FOR HEWZ TYPE)
Q3
Q5
Q1
Q2
Q6
TONE ASS'Y
(AWZ4045 FOR HE, KU AND SD TYPES)
(AWZ4042 FOR HEWZ TYPE)
HE, KU AND SD TYPES Jumper
HEWZ TYPE ONLY
HE, KU AND SD TYPES
VR601
VR604
VR603
TONE ASS'Y AWZ 4042 4045
IC601
IC602
VR601 VR604
VR603
L401
L402
CN10
CN7
CN4
HEWZ TYPE ONLY
HE, KU AND SD TYPES
HEWZ TYPE Jumper
VR701
SHIELD ASS'Y
LED ASS'Y
HE, SD AND HEWZ TYPES
HEAT PROTECT ASS'Y
4040
4043
AWZ
ANP1555-B
VR701
VR201
Q306 Q305
Q307
Q303 Q304
Q223 Q229
Q225 Q219
Q211 Q203
Q227 Q201
Q221 Q231 Q217
Q301 Q238 Q215 Q233
Q207 Q205
Q216 Q208 Q206 IC101
Q302 Q237 Q234
Q218
Q222 Q228 Q232 Q202
Q212 Q204
Q226 Q220
VR
1
2
3
4
5
6
A
B
C
D


YELLOW 5
7 BROWN
HEWZ TYPE ONLY
RY301
A
RY302
B
Q6
Q4
6 GND
17
19
42.0 (35.0)
HEWZ TYPE ONLY
HE, KU AND SD TYPES Jumper
IDLE ADJ
PLAY
TAPE2
REC
PLAY
TAPE1
REC
CD
TUNER
LINE
IN
ADAPTOR
OUT
PHONO
VR202
Q222 Q212 Q226 Q224
Q228 Q204 Q220 Q230
Q232
Q202


POWER TRANS. ASS'Y
CN8
HEWZ TYPE ONLY
40.9 (35.6)
POWER TRANS. ASS'Y


POWER SUPPLY SECTION FOR HE AND HEWZ TYPES
POWER SW. ASS'Y
⚠ AC POWER CORD AC 230V 50/60Hz
⚠ T1 POWER TRANSFORMER
13
240V 5
11
230V 3
9
16
0V 4
4
B
2
NEUTRAL BLUE
LIVE BROWN
C511
C510
FU1 2A-125V
RISK OF FIRE-REPLACE FUSE AS MARKED.

NOTE

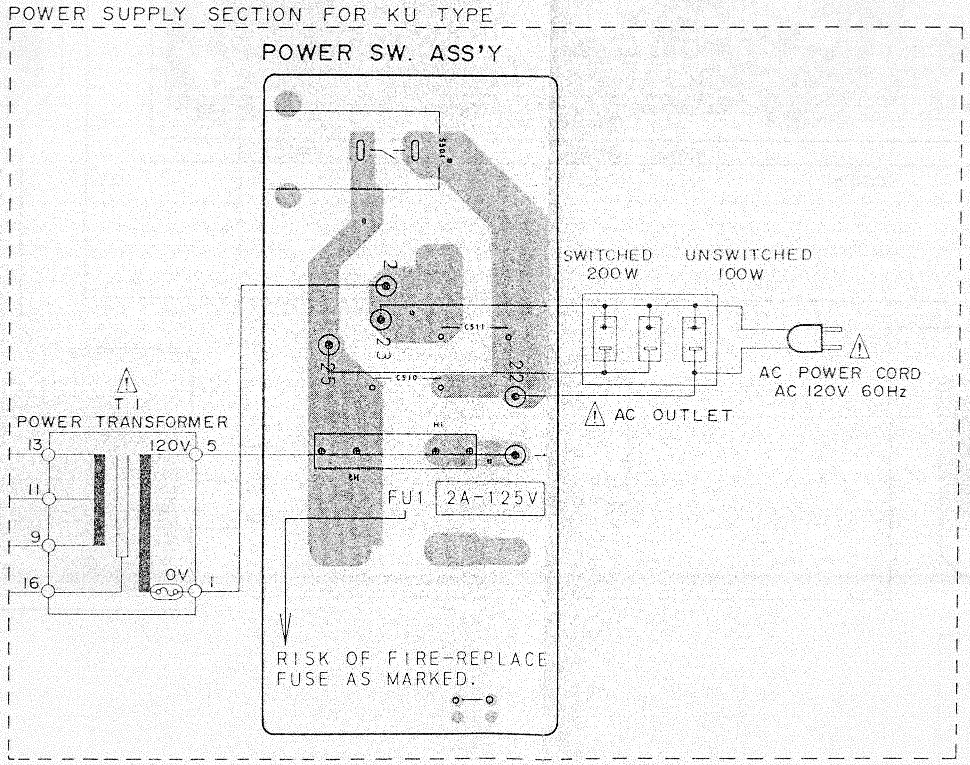
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wirng symbols listed in the following Table.

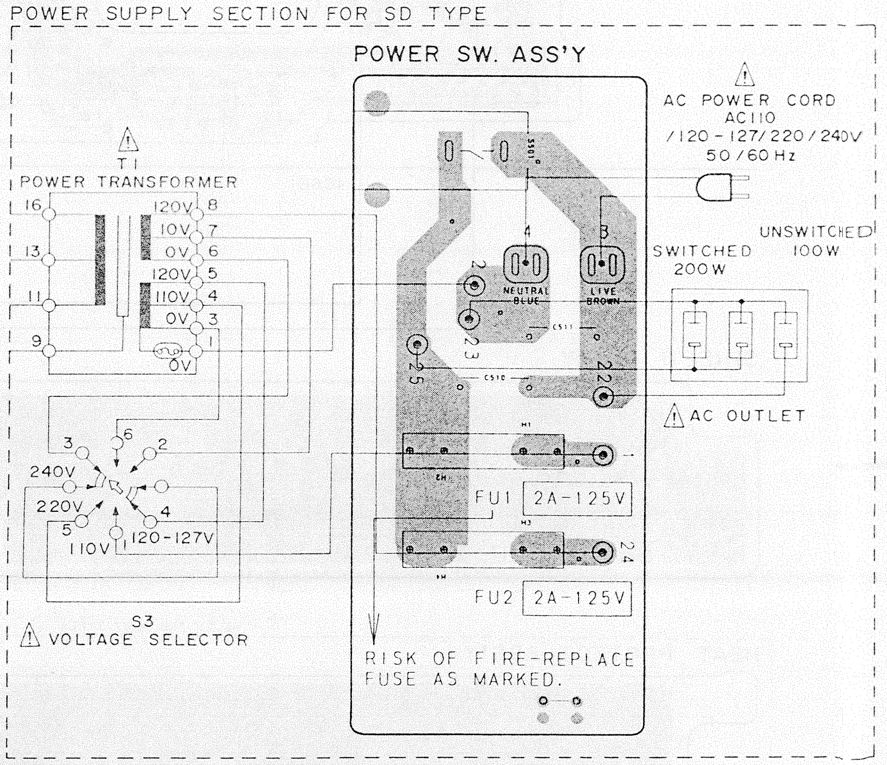
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E	E or E	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513	+	Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

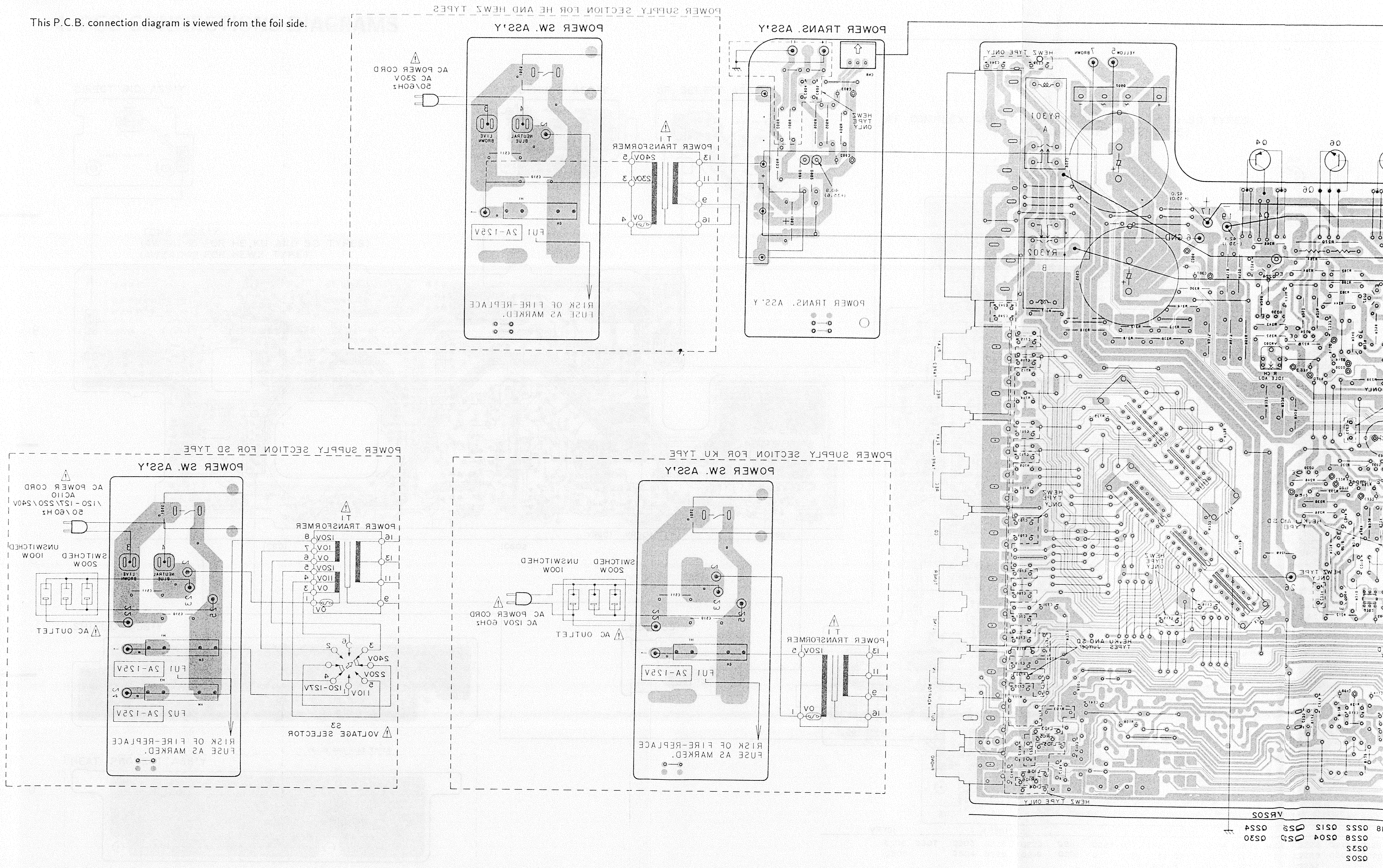
P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capactor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

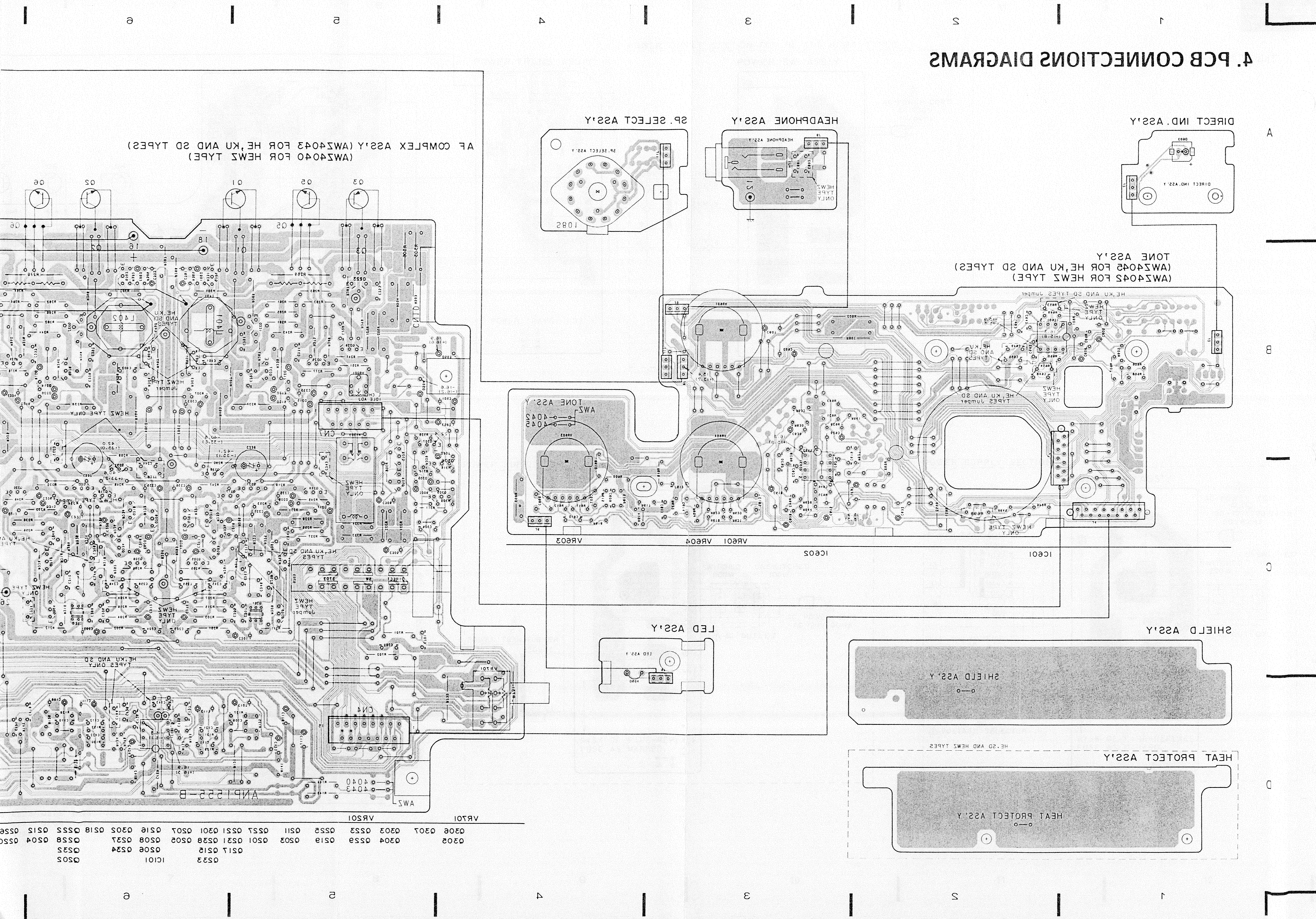

POWER SUPPLY SECTION FOR KU TYPE
POWER SW. ASS'Y
SWITCHED 200W
UNSWITCHED 100W
⚠ AC POWER CORD AC 120V 60Hz
⚠ AC OUTLET
⚠ T1 POWER TRANSFORMER
13
120V 5
11
9
16
0V 1
2
3
22
25
C511
C510
FU1 2A-125V
RISK OF FIRE-REPLACE FUSE AS MARKED.


POWER SUPPLY SECTION FOR SD TYPE
POWER SW. ASS'Y
⚠ AC POWER CORD AC110 /120-127/220/240V 50/60Hz
⚠ T1 POWER TRANSFORMER
16
13
11
9
120V 8
10V 7
0V 6
120V 5
110V 4
0V 3
0V 1
SWITCHED 200W
UNSWITCHED 100W
NEUTRAL BLUE
LIVE BROWN
⚠ AC OUTLET
3 6 2
240V
220V
5 4
110V
120-127V
S3
⚠ VOLTAGE SELECTOR
FU1 2A-125V
FU2 2A-125V
24
RISK OF FIRE-REPLACE FUSE AS MARKED.

This P.C.B. connection diagram is viewed from the foil side.


A
B
C
D
POWER SUPPLY SECTION FOR HE AND HEWZ TYPES
POWER SW. ASS'Y
AC POWER CORD
AC 230V
50/60Hz
LIVE BROWN
NEUTRAL BLUE
FU1 2A-125V
RISK OF FIRE-REPLACE FUSE AS MARKED.
POWER TRANSFORMER
T1
240V 5
230V 3
0V 4
13
11
9
16
POWER TRANS. ASS'Y
HEWZ TYPE ONLY
RY301 A
RY302 B
Q4
Q6
GND
POWER SUPPLY SECTION FOR SD TYPE
AC POWER CORD
AC110/120-127/220/240V
50/60Hz
UNSWITCHED 100W
SWITCHED 200W
AC OUTLET
FU2 2A-125V
120V 8
110V 7
0V 6
120V 5
110V 4
0V 3
0V 1
S3
VOLTAGE SELECTOR
240V
220V
110V
120-127V
POWER SUPPLY SECTION FOR KU TYPE
AC POWER CORD
AC 120V 60Hz
120V 5
0V 1
HEKO AND SD TYPES jumper
HEWZ TYPE ONLY
VR202
Q224 Q230
Q212 Q204
Q222 Q228 Q232 Q202

4. PCB CONNECTIONS DIAGRAMS


1
2
3
4
5
6
A
B
C
D
DIRECT IND. ASS'Y
HEADPHONE ASS'Y
SP. SELECT ASS'Y
AF COMPLEX ASS'Y (AWZ4043 FOR HE,KU AND SD TYPES)
(AWZ4040 FOR HEWZ TYPE)
Q3
Q5
Q1
Q2
Q6
TONE ASS'Y
(AWZ4045 FOR HE,KU AND SD TYPES)
(AWZ4042 FOR HEWZ TYPE)
HEWZ TYPE ONLY
HE,KU AND SD TYPES jumper
VR603
VR604
VR601
IC602
IC601
CN7
CN4
ANP1555-B
AWZ
4040
4043
4042
4045
LED ASS'Y
SHIELD ASS'Y
HE.SD AND HEWZ TYPES
HEAT PROTECT ASS'Y
VR701
VR201
Q306 Q307 Q303 Q223 Q225 Q211 Q227 Q221 Q301 Q207 Q216 Q302 Q218 Q222 Q212 Q226
Q305 Q304 Q229 Q219 Q203 Q201 Q231 Q238 Q205 Q208 Q237 Q228 Q204 Q220
Q217 Q215 Q206 Q234 Q232
Q233 IC101 Q202

5. PCB PARTS LIST

NOTES:
- *Part without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56×10^1 561 ………………………… RD1/8PM$\boxed{5}\boxed{6}\boxed{1}$J
47kΩ 47×10^3 473 ………………………… RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5Ω 0R5 ………………………… RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1Ω 010 ………………………… RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562×10^1 5621 ………………………… RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

LIST OF ASSEMBLIES

Mark	No.	Description	Parts No.
◉		AF COMPLEX ASSY	AWZ4043
		POWER SW ASSY	
		HEAD PHONE ASSY	
◉		TONE ASSY	AWZ4045
		LED ASSY	
		SHIELD ASSY	
		DIRECT IND.ASSY	
		SP. SELECT ASSY	
		HEAT PROTECT ASSY	
		POWER TRANS ASSY	

◉AF COMPLEX ASSY(AWZ4043)

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC101	OP-AMP-IC	M5220P
	Q201,202	DUAL TRANSISTOR	2SA1240
	Q203-208	TRANSISTOR	2SA1048
	Q211,212	TRANSISTOR	2SC1845
	Q215-218	TRANSISTOR	2SA1048
	Q219,220	TRANSISTOR	2SC2705
	Q221,222	TRANSISTOR	2SC3298
	Q223,224	TRANSISTOR	2SA1306
	Q225,226	TRANSISTOR	2SC2603
	Q227,228	TRANSISTOR	2SC1845
	Q229,230	TRANSISTOR	2SA992
	Q231,232	TRANSISTOR	2SA1145
	Q233,234	TRANSISTOR	2SA992
	Q237	TRANSISTOR	2SC1845
	Q238	TRANSISTOR	2SA992
	Q301,302	TRANSISTOR	2SC1845
	Q303,304	TRANSISTOR	2SC2458
	Q305	TRANSISTOR	2SA1048
	Q306	TRANSISTOR	2SC1815
	Q307	TRANSISTOR	2SC2458
	D201,202	ZENER DIODE	RD2.7ESB1
	D209-216	DIODE	HSS104-02
	D217-220	ZENER DIODE	RD8.2ESB1
	D301-306	DIODE	HSS104-02
	D307	ZENER DIODE	RD15ESB
	D503,504	ZENER DIODE	RD16ESB3
	D507	DIODE	D5SB20F

SWITCHES

Mark	No.	Description	Parts No.
	S701	SWITCH	ASU1016
	S702	SWITCH	ASU1002
	S703	PUSH SWITCH	SULL6S

RELAYS

Mark	No.	Description	Parts No.
	RY301-303		RELAY
ASR-111			

COILS, FILTERS

Mark	No.	Description	Parts No.
	L401,402	COIL	ATH1053

CAPACITORS

Mark	No.	Description	Parts No.
	C103,104	CERAMIC CAPACITOR	CCCSL221J50
	C107,108	ELECTR.CAPACITOR	CEAS101M10
	C109,110	AUDIO FILM CAPACITOR	CFTXA683J50
	C111,112	AUDIO FILM CAPACITOR	CFTXA183J50
	C113,114	ELECTR.CAPACITOR	CEAS4R7M50
	C117,118	ELECTR.CAPACITOR	CEAS221M25
	C119,120	CERAMIC CAPACITOR	CKCYF103Z50
	C121,122	MYLAR FILM CAPACITOR	CQMA122J50
	C123,124	ELECTR.CAPACITOR	CEAS100M50
	C125,126	CERAMIC CAPACITOR	CCCSL101J50
	C127,128	CERAMIC CAPACITOR	CCCSL221J50
	C129	CERAMIC CAPACITOR	CKPYX103N25
	C141	CERAMIC CAPACITOR	CKCYF103Z50
	C143,144	MYLAR FILM CAPACITOR	CQMA472K50
	C201,202	ELECTROLYTIC CAPACIT	CEXA2R2M50
	C203,204	CERAMIC CAPACITOR	CCCSL470K500
	C205-208	CERAMIC CAPACITOR	CCCSL470J50
	C209,210	CERAMIC CAPACITOR	CCCSL221J50
	C211,212	ELECTROLYTIC CAPACIT	CEXA101M50
	C213-216	CERAMIC CAPACITOR	CCCSL120K500
	C217,218	ELECTR.CAPACITOR	CEAS101M10
	C219-222	ELECTR.CAPACITOR	CEAS3R3M100
	C225,226	ELECTR.CAPACITOR	CEAS331M10
	C227-230	CERAMIC CAPACITOR	CCCSL330K500
	C231,232	CERAMIC CAPACITOR	CKCYB122K50

Mark	No.	Description	Parts No.
	C233−236	ELECTR.CAPACITOR	CEAS100M50
	C237,238	ELECTROLYTIC CAPACIT	CEAS331M50
	C247,248	AUDIO FILM CAPACITOR	CFTXA103J50
	C251−254	CERAMIC CAPACITOR	CCCSL330K500
	C255	CERAMIC CAPACITOR	CCCSL121J50
	C256	CERAMIC CAPACITOR	CCCSL470J50
	C301,302	ELECTROLYTIC CAPACIT	CEANP4R7M50
	C303	ELECTROLYTIC CAPACIT	CEAS471M6
	C304	CERAMIC CAPACITOR	CKCYF103Z50
	C305	ELECTR.CAPACITOR	CEAS101M25
	C306−308	ELECTR.CAPACITOR	CEASR47M50
	C401−404	AUDIO FILM CAPACITOR	CFTXA104J50
	C501,502	ELECTR.CAPACITOR	CEAS470M25
	C505	ELECTROLYTIC CAPACIT	ACH1189
	C506	ELECTROLYTIC CAPACIT	ACH1190
	C701,702	CERAMIC CAPACITOR	CCCSL101K500
	C719,720	CERAMIC CAPACITOR	CKCYB331K50
	C725	CERAMIC CAPACITOR	CKCYF103Z50
	C731	CERAMIC CAPACITOR	CKCYF103Z50
RESISTORS			
	VR201,202	VR(47K)	ACP1045
	VR701	VR	ACT1073
	R105,106	CARBON FILM RESISTOR	RDR1/6PU100J
	R121,122	CARBON FILM RESISTOR	RDR1/4PM820J
	R133,134	CARBON FILM RESISTOR	RDR1/6PU471J
	R141,142	CARBON FILM RESISTOR	RDR1/6PU563J
	R143,144	CARBON FILM RESISTOR	RD1/4PM560J
	R145	CARBONFILM RESISTER	RD1/8PM2R7J
	R201,202	CARBON FILM RESISTOR	RDR1/4PM101J
	R203,204	CARBON FILM RESISTOR	RDR1/4PM104J
	R205,206	CARBON FILM RESISTER	RD1/4PM152J
	R207,208	CARBON FILM RESISTOR	RD1/4PM103J
	R209,210	CARBON FILM RESISTER	RD1/4PM152J
	R211−214	CARBON FILM RESISTOR	RD1/4PM562J
	R215,216	CARBON FILM RESISTOR	RDR1/4PM102J
	R217,218	CARBON FILM RESISTOR	RDR1/4PM124J
	R219,220	CARBON FILM RESISTOR	RD1/4PM473J
	R221,222	CARBON FILM RESISTOR	RD1/4PM101J
	R223,224	CARBON FILM RESISTOR	RD1/4PM272J
	R225,226	CARBON FILM RESISTOR	RD1/4PM332J
	R227,228	CARBON FILM RESISTOR	RD1/4PM561J
	R229,230	CARBON FILM RESISTOR	RD1/4PM332J
	R231,232	CARBON FILM RESISTOR	RD1/4PM272J
	R233,234	CARBON FILM RESISTOR	RD1/4PM101J
	R237,238	CARBON FILM RESISTOR	RDR1/4PM224J
⚠	R239−242	FUSLIBLE RESISTOR	RFA1/4PS101J
⚠	R243,244	CARBON FILM RESISTOR	RD1/4PMF561J
⚠	R245−248	FUSLIBLE RESISTOR	RFA1/4PS101J
	R249,250	CARBON FILM RESISTOR	RD1/4PM122J
	R251,252	CARBON FILM RESISTOR	RD1/4PM103J
	R255,256	CARBON FILM RESISTOR	RD1/4PM561J
⚠	R257−260	FUSLIBLE RESISTOR	RFA1/4PS101J
⚠	R261−264	FUSLIBLE RESISTOR	RFA1/4PS470J
⚠	R265−268	FUSLIBLE RESISTOR	RFA1/4PS4R7J
⚠	R269,270	RESISTOR (0.33, 5W)	ACN1063

Mark	No.	Description	Parts No.
	R275,276	CARBON FILM RESISTOR	RD1/4PM472J
	R277,278	CARBON FILM RESISTOR	RD1/4PM222J
⚠	R281−284	FUSLIBLE RESISTOR	RFA1/4PS331J
⚠	R285,286	FUSLIBLE RESISTOR	RFA1/4PS101J
⚠	R287,288	FUSLIBLE RESISTOR	RFA1/4PS4R7J
⚠	R289,290	FUSLIBLE RESISTOR	RFA1/4PS331J
	R299	CARBON FILM RESISTOR	RD1/4PM100J
⚠	R301,302	CARBON FILM RESISTOR	RD1/4PMF222J
⚠	R308	CARBON FILM RESISTOR	RD1/4PMF101J
	R311	CARBON FILM RESISTOR	RD1/4PM101J
	R312−315	CARBON FILM RESISTOR	RD1/4PM181J
	R317−324	CARBON FILM RESISTOR	RD1/4PM181J
	R325−327	CARBON FILM RESISTOR	RD1/4PM221J
⚠	R330	CARBON FILM RESISTOR	RD1/4PMF010J
⚠	R401,402	CARBON FILM RESISTOR	RD1/4PMFL101J
⚠	R403,404	METAL OXIDE RESISTOR	RS1LMF331J
⚠	R407,408	CARBON FILM RESISTOR	RD1/4PMFL100J
	R501,502	CARBON FILM RESISTOR	RD1/2PM181J
	R503−520	CARBONFILM RESISTOR	RD1/2PM221J
	R701,702	CARBON FILM RESISTOR	RDR1/4PM101J
	R731−732	CARBON FILM RESISTOR	RD1/4PM103J
		Other resistors	RD1/8PM☐☐☐J
OTHERS			
	CN4	CONNECTOR(15P)	KPE15
	CN7	CONNECTOR(11P)	KPE11
		PIN JACK(4P)	AKB1007
		PIN JACK(6P)	AKB1008
		PIN JACK(6P)	AKB1024
		SPEAKER TERMINAL 8−P	AKE1011

POWER SW ASSY

SWITCHES

⚠	S501	PUSH SWITCH(ON/OFF)	ASG1035

CAPACITORS

⚠	C510,511	CKA (0.01/AC400V)	ACG1002

HEAD PHONE ASSY

OTHERS

		JACK	AKN1002

●TONE ASSY(AWZ4045)

SEMICONDUCTORS

	IC601,602	OP−AMP IC	RC4558DXP

CAPACITORS

	C601,602	ELECTR.CAPACITOR	CEAS100M50
	C605,606	ELECTR.CAPACITOR	CEAS100M50
	C607,608	CERAMIC CAPACITOR	CKCYX153M2
	C609,610	MYLAR FILM CAPACITOR	CQMA823J50
	C611,612	CERAMIC CAPACITOR	CKCYB332K5

Mark	No.	Description	Parts No.
	C613,614	CERAMIC CAPACITOR	CKCYX183M25
	C615,616	ELECTR.CAPACITOR	CEAS2R2M50
	C617,618	ELECTR.CAPACITOR	CEAS100M50
	C619,620	CERAMIC CAPACITOR	CCCSL390J50
	C621,622	CERAMIC CAPACITOR	CCCSL680J50
	C629,630	ELECTR.CAPACITOR	CEAS470M25
	C631,632	ELECTR.CAPACITOR	CEAS221M25
	C641,642	CERAMIC CAPACITOR	CCCSL470J50
	C645,646	CERAMIC CAPACITOR	CKCYB102K50
	C647,648	CERAMIC CAPACITOR	CCCSL151J50
	C649,650	CERAMIC CAPACITOR	CKCYF103Z50

RESISTORS

	VR601	VARIABLE(100K−BX2)	ACT1046
	VR603,604	VARIABLE(100K−20AX2)	ACT1045
	R651,652	CARBON FILM RESISTOR	RD1/4PM101J
⚠	R801,802	METAL OXIDE RESISTOR	RS1PMF331J
⚠	R803	METAL OXIDE RESISTOR	RS1LMF561J
		Other resistors	RD1/8PM□□□J

LED ASSY

SEMICONDUCTORS

	D604	LED(RED)	AEL1065

SHIELD ASSY

Shield assy has no service part.

DIRECT IND. ASSY

SEMICONDUCTORS

	D603	LED	AEL1010

SP.SELECT ASSY

SWITCHES

	S801	SWITCH	ASD1003

HEAT PROTECT ASSY

Heat protect assy has no service part.

POWER TRANS ASSY

SEMICONDUCTORS

	D901,902	DIODE	11E2

CAPACITORS

	C901	POLYESTER CAPACITOR	CQMXA473J100
	C902	ELECTR.CAPACITOR	CEAS101M50
	C903	ELECTR.CAPACITOR	CEAS220M50

RESISTORS

⚠	R903,904	CARBON FILM RESISTOR	RD1/4PMF010J
⚠	R905	METAL OXIDE RESISTOR	RS1LMF222J
⚠	R906	METAL OXIDE RESISTOR	RS1LMF272J

6. ADJUSTMENTS

IDLE CURRENT ADJUSTMENT

1. Connect measuring instrument as Fig. 6−1.
2. Set the VOLUME CONTROL to minimum.
3. Set the POWER switch to ON.
4. Adjust VR201 (VR202) so that the voltage between TP1 (TP3) and TP2 (TP4) becomes 20mV $^{+3mV}_{-15mV}$.

NOTE)
After turning on the power, wait at least 5 minutes before adjustment.

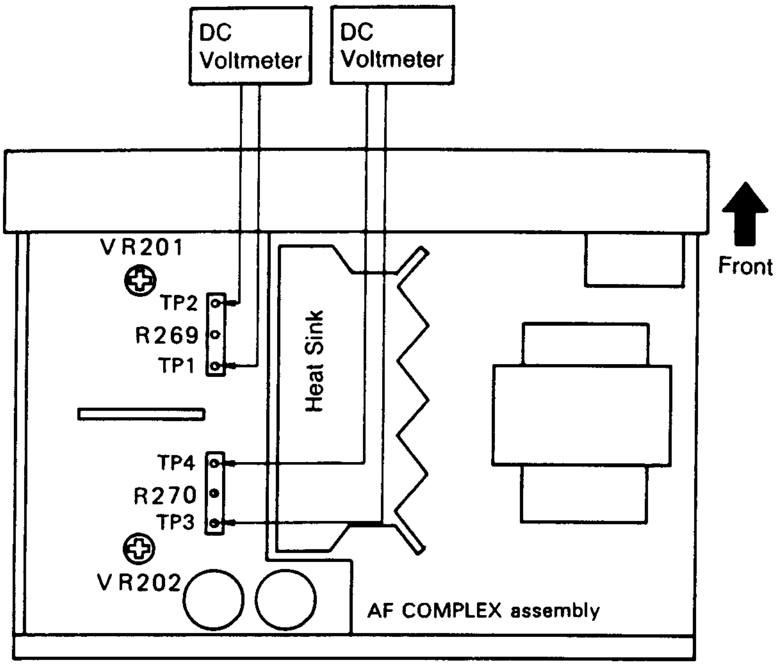

DC Voltmeter
DC Voltmeter
Front
VR201
TP2
R269
TP1
Heat Sink
TP4
R270
TP3
VR202
AF COMPLEX assembly

Fig. 6−1. Adjustment Method

6. REGLAGE

REGLAGE DU COURANT DEWATTE

1. Brancher les fils comme indiqué dans la fig. 6−1.
2. Après la mise sous tension, le moteur dure 5 minutes et n'introduire charge.
3. VR 201 sera réglé dans le canal gauche de manière que les deux tensions de bornes de R269 atteignent 20 mV $\left(\begin{smallmatrix}+\ 3\mathrm{mV}\\ -15\mathrm{mV}\end{smallmatrix}\right)$.
4. VR 202 sera réglé dans le canal droit de manière que les deux tensions de bornes atteignent 20 mV $\left(\begin{smallmatrix}+\ 3\mathrm{mV}\\ -15\mathrm{mV}\end{smallmatrix}\right)$.

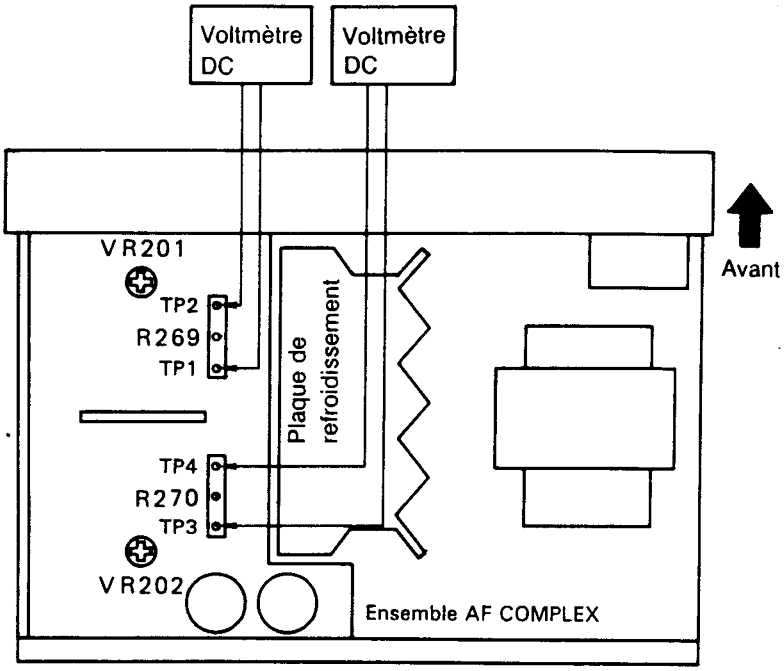

Voltmètre DC
Voltmètre DC
VR201
TP2
R269
TP1
Plaque de refroidissement
Avant
TP4
R270
TP3
VR202
Ensemble AF COMPLEX

Fig. 6−1. Schéma du réglage

6. AJUSTE

AJUSTE DE LA CORRIENTE DEVATIADA

1. Conecte el cable como lo ilustra la Fig. 6−1.
2. El motor funciona por 5 mintos despqués de encender la unidad, sin introduzca.
3. El VR201 del canal izquierdo debe ajustarse de modo que la tensión entre ambos bornes de R269 llegue a 20 mV $\left(\begin{smallmatrix}+3\text{mV}\\-15\text{mV}\end{smallmatrix}\right)$.
4. El VR202 del canal derecho debe ajustarse de modo que la tensión entre ambos bornes llegue a 20 mV $\left(\begin{smallmatrix}+3\text{mV}\\-15\text{mV}\end{smallmatrix}\right)$.

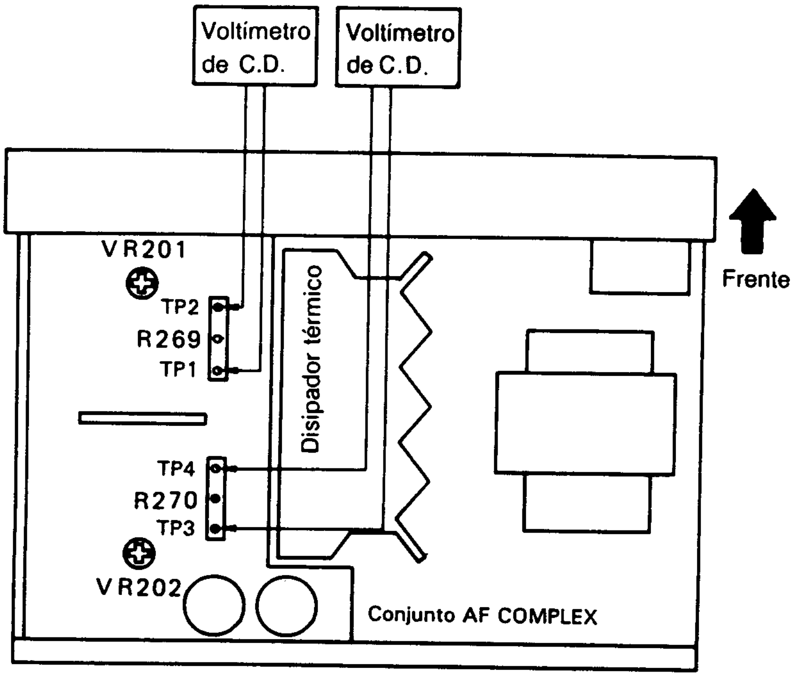

Voltímetro de C.D.
Voltímetro de C.D.
VR201
TP2
R269
TP1
Disipador térmico
TP4
R270
TP3
VR202
Frente
Conjunto AF COMPLEX

Fig. 6−1. Diagrama de ajuste

7. FOR HEWZ, KU AND SD TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Part without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

A-301/HEWZ, KU, SD and A-301/HE have the same construction except for the following :

Mark	Symbol & Description	Part No.				Remarks
		HE type	HEWZ type	KU type	SD type	
◉	TONE assembly	AWZ4045	AWZ4042	AWZ4045	AWZ4045	
◉	AF COMPLEX assembly	AWZ4043	AWZ4040	AWZ4043	AWZ4043	
	POWER SW. assembly	Non supply	Non supply	Non supply	Non supply	
	HEADPHONE assembly	Non supply	Non supply	Non supply	Non supply	
	POWER TRANS assembly	Non supply	Non supply	Non supply	Non supply	
	HEAT PROTECT assembly	Non supply	Non supply	....	Non supply	
⚠	3P AC outlet	....	....	AKP−515	AKP−515	
	Insulator assembly	AMR2140	AMR2140	AMR2141	AMR2140	
⚠	AC power cord	ADG1049	ADG1049	ADG1058	ADG1051	
⚠	AC cord stopper	AEC−882	AEC−882	AEP−113	AEC−882	
⚠	Fuse(FU1, T2A/250V)	AEK−511	AEK−511	....	....	
⚠	Fuse(FU1, 5A)	....	....	AEK−308	....	
⚠	Fuse (FU1, FU2, 2A/125V)	....	....	....	AEK−122	
⚠	Voltage selector (AC110/120−127/220/240V)	....	....	....	AKX−507	
⚠	Power transformer	ATS1345	ATS1345	ATS1343	ATS1344	
	Packing case	AHD2243	AHD2243	AHD2245	AHD2243	
	Operating instructions (English, French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	ARE1227	....	....	....	
	Operating instructions (German)	....	ARC1333	....	....	
	Operating instructions (English, French)	....	....	ARE1228	ARE1228	
	Operating instruction (Spanish)	....	....	....	ARC1335	

TONE ASSEMBLY

The TONE assembly(AWZ4042) and the TONE assembly(AWZ4045) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4045	AWZ4042	
	C621, 622	CCCSL680J50	CCCSL121J50	
	C649, 650	CKCYF103Z50	…………	
	R653, 654	…………	RD1/8PM102J	
	R698	…………	RD1/8PM100J	

AF COMPLEX ASSEMBLY

The AF COMPLEX assembly(AWZ4040) and the AF COMPLEX assembly(AWZ4043) have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ4043	AWZ4040	
	C103, 104	CCCSL221J50	CCCSL330J50	
	C115, 116	…………	CQMA392K50	
	C139, 140	…………	CCCSL330J50	
	C143, 144	CQMA472K50	…………	
	C213, 214	CCCSL120K500	CCCSL060D500	
	C215, 216	CCCSL120K500	…………	
	C223, 224	…………	CKCYF223Z50	
	C239－242	…………	CQMA103K250	
	C243, 244	…………	CKCYX104M25	
	C245, 246	…………	CKCYB331K50	
	C251－254	CCCSL330K500	CCCSL680K500	
	C301, 302	CEANP4R7M50	CEAS4R7M50	
	C401, 402	CFTXA104J50	CFTXA473J50	
	C403, 404	CFTXA104J50	…………	
	C703－708,711, 712, 715, 716	…………	CCCSL151J50	
	C719, 720	CKCYB331K50	CCCSL271J50	
	C725	CKCYF103Z50	CCCSL221J50	
	C727, 728	…………	CCCSL221J50	
	L103－L106	…………	LAU221K	
	R103	…………	RD1/8PM4R7J	
	R105, 106	RDR1/6PU100J	RD1/8PM332J	
	R271	…………	RD1/8PM010J	
	R719, 720	…………	RD1/8PM331J	
	R724	…………	RD1/8PM100J	

HEADPHONE ASSEMBLY

HEADPHONE assemblies of KU, SD and HE types are the same.

HEADPHONE assemblies of HEWZ and HE types have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZ type	
	C801, 802	....	CKCYB392K50	

POWER TRANS. ASSEMBLY

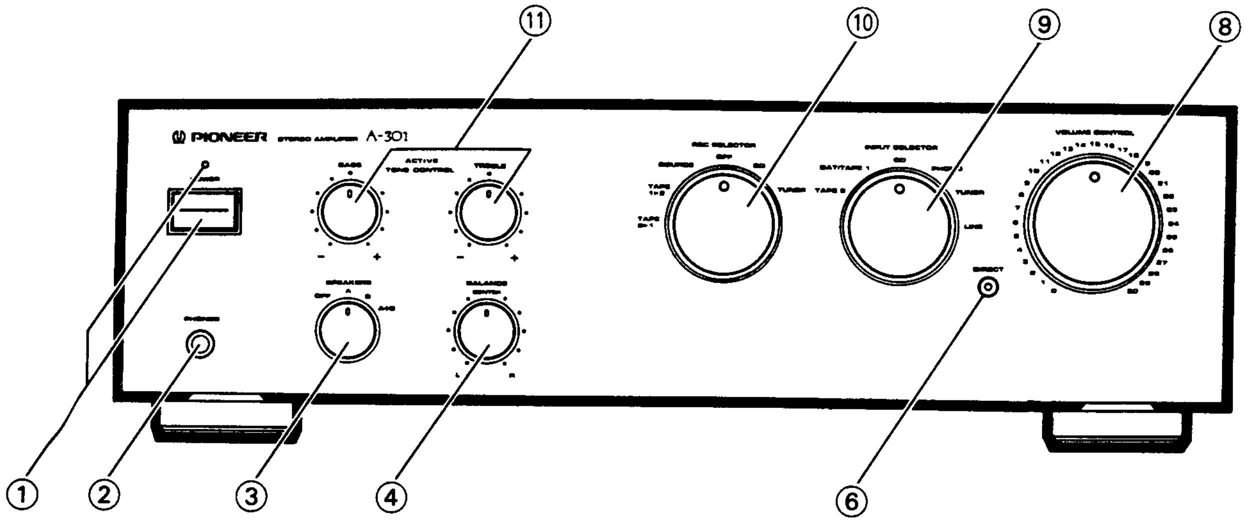
POWER TRANS. assemblies of KU, SD and HE types are the same.

POWER TRANS. assemblies of HEWZ and HE types have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		HE type	HEWZ type	
	C901	CQMXA473J500	CQMXA104J100	
	C904, 905	....	CKDYF473Z50	
	R901, 902	....	RD1/4PMF100J	

8. PANEL FACILITIES

1



FRONT PANEL **See Fig. 1**

① POWER switch/indicator

Press to turn power to the unit ON and OFF.
When the power is on, the indicator lights.

② PHONES jack

When using headphones, insert the plug into this jack.

③ SPEAKERS selector switch

Use this switch to listen to the speaker systems connected to SPEAKERS terminals.

OFF:
Released position: No sound is heard from the speaker systems. Set to this position when listening with headphones.

A:
For reproduction of sound with the speaker system connected to the SPEAKERS A terminals.

B:
For reproduction of sound with the speaker system connected to the SPEAKERS B terminals.

A + B:
For reproduction of sound with the speaker systems connected to SPEAKERS A and B terminals.

④ BALANCE control

Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers. If the right side is louder, turn toward the (L) position and if the left side is louder, turn toward the (R) position.

NOTE:
This control does not operate when DIRECT switch is in the on position.

⑥ DIRECT switch/indicator

Use this switch/indicator when you do not wish to pass the output from input terminal equipment through the various frequency adjusting circuits (BASS, TREBLE, SUBSONIC) and adaptor terminals (ADAPTOR).

ON:
The indicator lights: The signals input through the input terminals are reproduced without passing through the various frequency adjusting circuits. This results in flat, pure sound which is a more faithful reproduction of the input source.

OFF:
The indicator goes off: The signal passes through the various frequency adjusting circuits.

⑧ VOLUME CONTROL

Use to adjust the volume level.

⑨ INPUT SELECTOR switch

Use to select the playback source.

LINE:
For playback with a component connected to LINE terminal.

TUNER:
For AM or FM broadcast reception with a tuner.

PHONO:
For record playback with a turntable.

CD:
For compact disc playback with a CD player.

DAT/TAPE 1:
For playback with a cassette deck or digital audio cassette deck connected to DAT/TAPE 1 terminals.

TAPE 2:
For playback with a cassette deck connected to TAPE 2 terminals.

⑩ REC SELECTOR switch

When this switch is set to a position other than SOURCE or OFF, the equipment selected by REC SELECTOR switch can be recorded from, irrespective of the settings of INPUT SELECTOR and DIRECT switches.

TUNER:
To record from the equipment connected to TUNER terminals.

CD:
To record from the equipment connected to CD terminals.

OFF:
In this position, nothing from REC terminals of DAT/TAPE 1 and TAPE 2 is output. Set to this position when not recording; the cassette deck will be disconnected, improving sound quality.

SOURCE:
To record from the equipment selected by INPUT SELECTOR switch.

TAPE:

1 ► 2:
To record (copy) from the cassette deck of DAT/TAPE 1 terminals, to the cassette deck of TAPE 2 terminals.

2 ► 1:
To record (copy) from the cassette deck of TAPE 2 terminals, to the cassette deck of DAT/TAPE 1 terminals.

⑪ ACTIVE TONE CONTROL

Ordinarily, the more the volume control is turned down, the more obvious the loudness characteristics become. Since the effects of this unit's tone control settings are increasingly emphasized as the volume is turned down, you can obtain the same kind of effect as loudness characteristics by using suitable tone control settings.

TREBLE tone control

Use to adjust the high-frequency tone at low volume level. The center position is the flat (normal) position. When turned to the right, high-frequency tones are emphasized; when turned to the left, high-frequency tones are de-emphasized.

NOTE:

- *This control does not operate when DIRECT switch is in the ON position.*
- *At volume levels lower than "8", the set tone control effect is obtained.*
  At volume levels higher than "8", the effect becomes increasingly weaker.

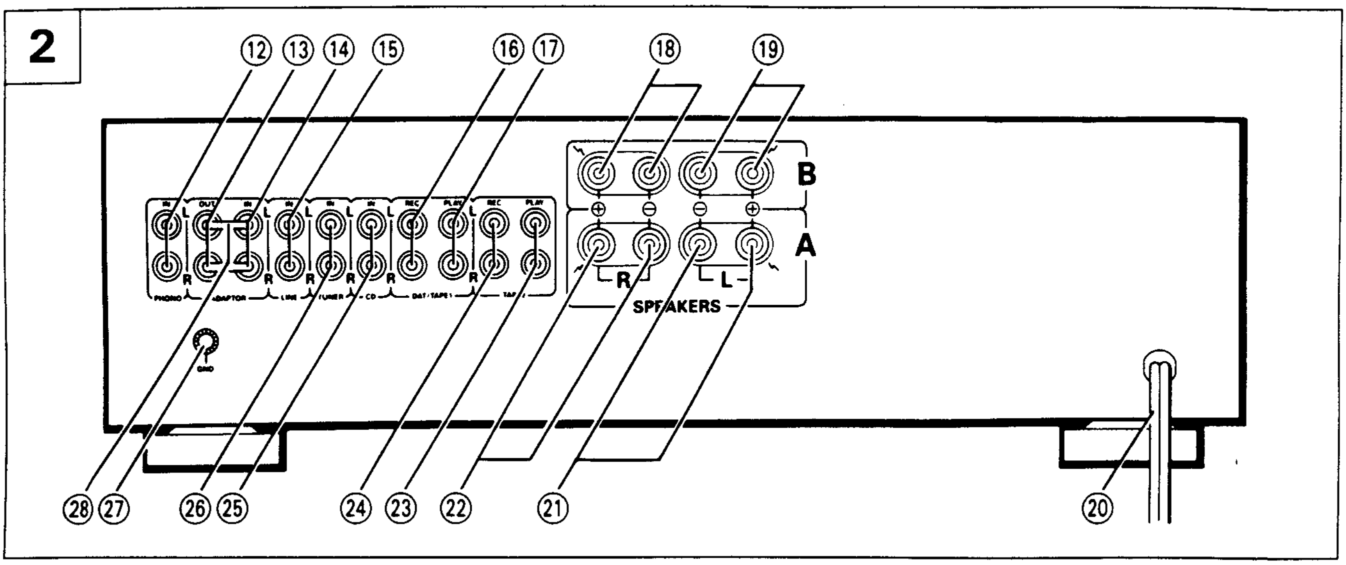
BASS tone control

Use to adjust the low-frequency tone at low volume level. The center position is the flat (normal) position. When turned to the right, low-frequency tones are emphasized; when turned to the left, low-frequency tones are de-emphasized.

NOTE:

- *This control does not operate when DIRECT switch is in the ON position.*
- *At volume levels lower than "8", the set tone control effect is obtained.*
  At volume levels higher than "8", the effect becomes increasingly weaker.

2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ADAPTOR
LINE
TUNER
CD
DAT/TAPE 1
TAPE 2
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SPEAKERS
GND
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⑳

REAR PANEL See Fig. 2

- ⑫ **PHONO terminals**
- ⑬ **ADAPTOR OUT terminals**
- ⑭ **ADAPTOR IN terminals**
- ⑮ **LINE terminals**
- ⑯ **DAT/TAPE 1 REC terminals**
- ⑰ **DAT/TAPE 1 PLAY terminals**
- ⑱ **SPEAKERS B terminals (right channel)**
- ⑲ **SPEAKERS B terminals (left channel)**
- ⑳ **Power cord**

Connect this cord to an AC wall socket, or the AC outlet of an audio timer.

- ㉑ **SPEAKERS A terminals (left channel)**
- ㉒ **SPEAKERS A terminals (right channel)**
- ㉓ **TAPE 2 PLAY terminals**
- ㉔ **TAPE 2 REC terminals**
- ㉕ **CD terminals**
- ㉖ **TUNER terminals**
- ㉗ **Turntable ground terminal (GND)**
- ㉘ **Shorting bars**

9. SPECIFICATIONS

Amplifier Section

Continuous power output (both channels driven at 20 Hz to 20 kHz)**	
T.H.D. 0.01 %, 8 Ω	40 W + 40 W*
T.H.D. 0.02 %, 4 Ω	50 W + 50 W*
DIN Continuous power output (both channels driven at 1 kHz)	
T.H.D. 1.0 %, 8 Ω	55 W + 55 W
T.H.D. 1.0 %, 4 Ω	75 W + 75 W
Dynamic power output (on EIA dynamic test signal)	
8 Ω/4 Ω/2 Ω	55 W/90 W/100 W
Total harmonic distortion **	
20 Hz to 20 kHz, 40 W, 8 Ω	0.01 %*
20 Hz to 20 kHz, 50 W, 4 Ω	0.02 %*

• *Above specifications are applicable when power supply is 230 V.*

Input sensitivity/impedance	
PHONO (MM)	2.5 mV/50 kΩ
CD, TUNER, LINE, TAPE	150 mV/40 kΩ
PHONO overload level	
1 kHz, T.H.D. 0.02 % (MM)	150 mV
Output level/impedance	
TAPE REC, ADAPTOR OUTPUT	150 mV/1 kΩ
Frequency response	
PHONO (MM)	20 Hz to 20 kHz ±0.3 dB
CD, TUNER, LINE, TAPE	5 Hz to 100 kHz $^{+0}_{-3}$ dB*
Tone control (volume control set at −30 dB position)	
BASS	±8 dB (100 Hz)
TREBLE	±8 dB (10 kHz)
Signal-to-Noise ratio (IHF short circuit, A network)	
PHONO (MM, 5 mV input)	89 dB*
CD, TUNER, LINE, TAPE	108 dB*
Signal-to-Noise ratio (DIN, continuous power/50 mW)	
PHONO (MM)	73 dB/63 dB*
CD, TUNER, LINE, TAPE	87 dB/65 dB*

Power Supply/Miscellaneous

Power Requirements	a.c. 220 – 230 Volts, 50/60 Hz
Power Consumption	410 W
Dimensions	420 (W) x 347 (D) x 126 (H) mm
Weight (without package)	6.9 kg

Accessories

Operating instructions	1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

* Measured with DIRECT switch set to on.
** Measured by Audio Spectrum Analyzer.